



## **FACT SHEET**

# **Frequently Asked Questions**

### **How can I find out today's air quality?**

Citizens can call a smog recording at (858) 586-2800 which gives the day's maximum pollution levels listed by monitoring stations and the forecasted pollution levels for the next day. The recording is updated at 4:30 p.m. each weekday. The recording also provides advance notice if there is the potential for unhealthful air quality. Air quality information can also be obtained through this web site ([www.sdapcd.org](http://www.sdapcd.org)) under Current Air Quality.

### **Why do we need to regulate air quality?**

Because it involves the health of our community. All of us face some health risk from polluted air. Short-term exposure to smog (ozone) for an hour or two can add stress to the body. It is a strong irritant that can cause constriction of the airways, forcing the respiratory system to work harder in order to provide oxygen. Chronic exposure to smog can reduce lung capacity, lower stamina, and leave people more vulnerable to long-term respiratory problems. Smog is especially harmful for children whose lungs are still developing, senior citizens whose immune systems are breaking down, and those who suffer from heart or lung disease.

Another pollutant, inhalable particles, can increase the number and severity of asthma attacks and cause or aggravate bronchitis and other lung diseases. Tiny particles, 2.5 microns or less in diameter, are so small they can penetrate deep into the lungs and damage lung tissue.

Safeguarding our air quality is the primary focus of our regulatory system. By controlling pollution, we can all breathe clean, healthful air.

### **What are clean air standards?**

An air quality or clean air standard is a legal limit that specifies the maximum acceptable level and duration of exposure for a given air pollutant in the outside air. Standards are set to protect the elderly, very young, and chronically sensitive portions of our population. Formally called the National Ambient Air Quality Standards or the California Ambient Air Quality Standards, these standards are set by the state and federal governments to provide an adequate margin of safety in protecting public health and welfare.

### **Has San Diego's air quality improved?**

Yes. The number of days when the San Diego region exceeds the clean air standards continues to show a continuing downward trend with an occasional peak due to meteorological influences. The last smog alert in San Diego County was in 1991.

### **What is the Air Quality Index?**

Many people, especially those who suffer from illnesses aggravated by air pollution, need accurate and easily understandable information about daily levels. This information allows them to modify their activities when air pollution levels are high. One way of conveying air pollution information is to report the concentration of each pollutant. However, different pollutants affect health at different concentrations; thus anyone wanting to act on the information must remember several different sets of numbers. The Air Quality Index (AQI) was developed by the Environmental Protection Agency (EPA) to avoid this problem by relating similar degrees of health effects to a uniform numerical scale that is

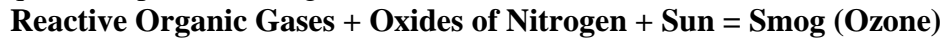
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based on actual pollutant concentrations. The higher the AQI number for a pollutant, the greater the danger. An AQI of 100 usually corresponds to the federal standard for that pollutant.

### **How is smog formed?**

Ground-level ozone, the primary ingredient of smog, results from the chemical reactions of reactive organic gases and oxides of nitrogen in the presence of sunlight.

The following equation represents smog formation:



Nitrogen oxides come from on- and off-road motor vehicles and fuel-burning industrial equipment. Reactive organic gases come from motor vehicles, solvents, consumer products, and the petroleum industry. Motor vehicles are responsible for about half of these two smog-forming (or precursor) emissions. Unlike carbon monoxide, smog does not come directly out of the tailpipe, but rather vehicles produce the emissions that later form smog (ozone) by means of the photochemical reaction. Because photochemical reactions take time to transform precursor emissions into smog, peak ozone concentrations usually occur miles downwind and during the afternoon when sunshine is most intense.

Another term often used when referring to smog-formation is hydrocarbons, which are any of a large number of compounds containing various combinations of hydrogen and carbon atoms. Most reactive organic gases are composed of hydrocarbons, however, a few hydrocarbons are not reactive. Also, the term "volatile organic compounds (VOC's)" is used for these precursor emissions in conjunction with federal law whereas "reactive organic gases (ROG)" is used in conjunction with state law.

### **Where are smog levels the highest?**

Alpine's smog levels in the west-facing lower mountain slopes are usually higher than the rest of the county because of how and where smog is created. Emissions from motor vehicles and industry are generated in the populated coastal plain and blown inland by the onshore breeze to the lower mountain slopes. These precursor emissions react in the area's abundant sunshine to create ozone, commonly called smog. When a temperature inversion occurs, it traps the pollutants against the mountain slopes and prevents them from rising. An inversion is formed when warm, dry inland air overlies the cool, moist marine air. The inversion layer hovers around 2,000 feet. The monitoring station at Alpine is also located at about 2,000 feet. Measurements taken at Alpine reflect smog levels for all lower mountain slope areas of the county, from Palomar Mountain south to the Mexican border, at elevations between 1,500 to 3,000 feet.

### **Does Los Angeles affect San Diego's air quality?**

Smog transported from the South Coast Air Basin (the metropolitan areas of Los Angeles, Orange, San Bernardino, and Riverside Counties) is a key factor on more than half the days San Diego exceeds clean air standards. Ozone and precursor emissions are transported to San Diego during relatively mild "Santa Ana" weather conditions. Winds blowing toward the southwest transport South Coast's polluted air out over the ocean and the sea breeze brings it onshore into San Diego County. (During a strong Santa Ana, pollutants are pushed far out to sea and miss San Diego.) When the transported smog is at ground level, the highest ozone concentrations are measured at coastal and near-coastal monitoring sites. When the blown-in smog cloud is elevated, coastal sites may be passed over, and the transported ozone is measured further inland and on the mountain slopes.

### **How about pollution from Mexico and Mexican vehicles?**

Most of the year, the prevailing winds blow inland toward the southeast, so there is no significant impact in San Diego from polluted air from Mexico. Infrequently, at night, there is a weak outflow from the land that drains some air from Tijuana into areas of San Diego adjacent to the border, but the morning

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sea breeze usually carries this polluted air inland from the populated coastal area before it is photochemically changed into smog by the sun. In addition, the San Diego Air Pollution Control District has been working with various governmental agencies to find ways to reduce emissions from Mexican-plated vehicles traveling this side of the border.

### **What is particulate matter?**

Particulate matter is a complex mixture of very tiny solid or liquid particles, composed of chemicals, soot, and dust. Because only very small particles can be inhaled into the lungs, health standards for the quality of ambient air are based on the mass concentration of "inhalable particles", defined to include microscopic, invisible particles that are 10 microns (millionths of a meter) or less in diameter called PM10. The smallest of these inhalable particles, those 2.5 microns and smaller, are called PM2.5. PM10 includes the full range of inhalable particles, whereas PM2.5 is a subset of PM10. Ten microns is about one-seventh the diameter of a human hair.

In areas with high levels of photochemical smog such as Southern California, particulates are formed by much the same process as ozone formation. In ozone formation, hydrocarbons and oxides of nitrogen (NO<sub>x</sub>) emissions are photochemically changed by the sun into ozone. In particulate formation, NO<sub>x</sub> is changed from a gas into nitric acid by a chemical reaction. It then combines with ammonia, sea salt and other substances to form small particulate matter.

### **Why be concerned about particle pollution?**

Particles affect our health. Particles 10 microns or less are capable of bypassing the body's natural defenses in the nose and throat and entering the lungs. When inhaled, particles can increase the number and severity of asthma attacks and cause or aggravate bronchitis and other lung diseases. Depending on their size, these particles affect different parts of the respiratory tract. Particles 2.5 to 10 microns tend to collect in the upper portion of the respiratory system. Those particles 2.5 microns and smaller are so tiny they can penetrate deeper into the lungs and damage lung tissue. Community health studies also link particle exposure to the premature death of people who already have heart and lung disease, especially the elderly.

Particles also affect our view. They absorb and scatter light. Airborne particles are a primary component of the haze that obscures visibility in our cities, rural communities, and scenic parks.

### **What does the Air Pollution Control District do?**

The mission of the Air Pollution Control District is to protect the public from the harmful effects of air pollution, achieve and maintain air quality standards, foster community involvement, and develop and implement cost-effective programs meeting state and federal mandates, considering environmental and economic impacts.

The District has ten monitoring stations that continuously record pollution levels and manages a permit system to ensure that potentially polluting operations and industrial equipment meet the emission standards set forth in District rules and regulations and sections of the Health and Safety Code. The District works with business, especially small business, to simplify permit processing and assist them with regulatory compliance. Regular inspections and laboratory and field tests are conducted to ensure that permit holders follow District rules to control and reduce emissions. When public complaints are received for odors, smoke, and other emission problems, inspections are conducted immediately. If a valid complaint exists, a Notice of Violation is issued.

The District also develops long-term regional strategies to reduce unhealthful pollution levels. These plans outline specific strategies and control measures to achieve clean air standards set by federal and state governments.

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### **Who serves on the Air Pollution Control Board?**

The members of the San Diego County Board of Supervisors also serve as the Air Pollution Control Board for San Diego County. The Board adopts local rules for controlling air pollution. Public hearings are held prior to adopting any rule or amendment to give citizens an opportunity to voice concerns. The Board also approves funding for the Air Pollution Control District's operations. This funding comes from the state and federal governments, fees charged to local businesses and industries, and vehicle registration fees.

### **Who is responsible for the Smog Check program?**

The State of California established the Smog Check program to help clear the air by reducing the amount of pollutants emitted by vehicles. More than half of the smog in our state comes from vehicles. For all Smog Check questions, please call the California Department of Consumer Affairs at 1-800-952-5210 or visit the Smog Check Web Site at [www.smogcheck.ca.gov](http://www.smogcheck.ca.gov).